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## ARMCHAIR WITH SEATLIFT

### FIELD OF INVENTION

The present invention relates to aids for persons who fall on the floor and are too weak to get up again on their own, and to aids for nurses and the like who have the back breaking job of having to lift a heavy person from the floor onto a wheelchair seat,

### BACKGROUND OF THE INVENTION

The background is applicants US Patent No,5,816,655 which is herein incorporated by reference. The current invention, in the following called a lift chair, describes and relates to an improvement on this prior invention, and more particularly refers to a method of providing that the liftchair may automatically become mobile when required and automatically becomes strongly immobile when this is required. The liftchair is provided with wheels in such a novel manner that the liftchair automatically is able to become mobile when the seat is moved to it's upper position and automatically becomes strongly immobile when the seat is in it's lower position, for instance, when a person may need to transfer from the ground to the seat without the seat moving away from the person during this transfer.

### SUMMARY OF THE INVENTION

It is an object of this invention to provide a liftchair, as above, with a mechanism that automatically allows the liftchair to become immobile while a person transfers onto the seat, yet automatically allows the liftchair to become mobile as the seat moves up to it's upper sitting position. The liftchair is supplied with wheels, that may be small wheels located, for instance, one wheel in each lower corner of the liftchair frame. Some of the wheels may be swivel wheels, located in such a manner that allows the seat to go fully down between the wheels to the ground and if desired, slightly down beyond the wheels, so that the seat will lift the wheels slightly off the ground, automatically leaving the seat and the whole liftchair frictionally anchored to the ground due to the weight of the liftchair fully resting on the ground, ready for the safe transfer of a person from the ground onto the seat.

It is another object of this invention to provide a mechanism that allows an immobilized liftchair as above, to automatically become mobile when needed, by rotatably attaching wheelchair type wheels to each side of the liftchair in such a manner that, the seat is allowed to go fully down to the ground between the frame and the wheels. The wheelchair wheels may extend down beyond the bottom of the liftchair frame allowing the wheels to contact and rest on the floor while the seat is in it's upper position, whereby the liftchair becomes mobile. Upon the seat being actuated to go vertically down to the ground, the seat is adapted to go down between the

wheelchair wheels to the ground and slightly down beyond the wheels, so that the seat may lift the wheelchair wheels slightly off the ground in it's down position, leaving the seat and the liftchair automatically anchored to the ground by the full combined weight of the liftchair and wheels , while a person is transferring onto the seat, thereby automatically keeping the liftchair immobile to it's fullest extent during this transfer operation, allowing a person safely to transfer from the ground onto the seat of the liftchair without the liftchair moving away from the person during this operation.

It is another object of this invention to provide a liftchair that allows an immobilized liftchair as above to automatically become fully mobile again as soon as the seat and the person thereon have started on the way up to the upper position.

It is a further object of this invention to provide a liftchair as above in which the wheelchair wheels are supplied with brakes to control the mobility of the liftchair, and the liftchair is supplied with handles, so that a nurse or the like may move the liftchair around.

It is a further object of this invention to provide a liftchair, as above, that, with the seat in the mobile upper position allows the liftchair to be moved by the person in the liftchair, by the person turning the wheels by hand, or by the person turning handrails attached to the wheels.

It is another object of this invention to eliminate the backbreaking need for a nurse to lift a heavy person from the ground up to a seat on a chair or on a wheelchair.

## BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG.1 is a perspective view of an armchair with a seatlift, in the following called a liftchair, indicating a new improvement of applicants old invention, showing a new armchair with a seat lift having a caster wheel arrangement thereon, this arrangement being such that it allows the seat to go fully down to the ground between the frame and the wheels. This view shows the liftchair in it's immobile condition with the seat in its lower position resting fully on the ground.

FIG.2 is a side elevation of a liftchair with another embodiment of the improvement of the present invention located thereon , comprising wheelchair type wheels rotatably attached to the sides of the frame of the liftchair and one or two swivel wheels attached to the rear of the liftchair,

shown in it's mobile condition with it's seat in it's upper position, out of contact with the ground and the wheels in contact with the ground. A handbrake is located on the frame to control mobility.

FIG.3 is a side elevation of the liftchair illustrated in FIG.2 shown in it's immobile condition with the seat in it's lowest position in firm contact with the ground, and the frame and wheels raised slightly off the ground, to provide that the full weight of the liftchair rests on the ground.

FIG.4 is a front elevation of the liftchair shown in FIG.1 in it's mobile condition with the seat in it's upper position, with the seat out of contact with the ground and the wheels in contact with the ground.

FIG.5 is a side elevation of the liftchair shown in FIG.4 with the seat in it's upper position, out of contact with the ground and the wheels in contact with the ground.

FIG.6 is a side elevation of the liftchair shown in FIG.5 with the seat in it's lowest position, resting with the full weight of the lift chair in contact with the ground.

FIG.7 is a side elevation of the embodiment shown in FIG.2 of the present invention in which the frame is made of tubing and supplied with handles and a battery for operating the seat.

FIG.8 and FIG.9 show drawings from prior art Patent No.5,816,655 showing the seat drive mechanism used in the present Patent Application.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG.1, a perspective view of the new improved liftchair is shown at 100, supplied with one embodiment of the present improvement Patent Application, comprising 2 fixed wheels 110, located one at each rear lower corner 114, and 2 swivel wheels 110a at each front lower corner 114a at lower front connecting bar 111 of frame 112, and with seat 113 having gone fully down between frame 112 and wheels 110 and 110a with seat 113 in it's lower position resting on fully on ground 115.

In FIG.2 and FIG.3 a similar liftchair of above type is shown at 130, with a second embodiment of the present invention, the wheels in this embodiment comprising a pair of large wheelchair type wheels 131 rotatably mounted on each side 112a and 112b of frame 112 with a

hand rail 132 mounted on each large wheelchair wheel, and a pair of smaller swivel wheels 133 mounted on brackets 154, one large wheel 131 and one smaller swivel wheel 133 being located on left side 112a and on right side 112b of liftchair 130. Conventional brakes 113 may be attached on either side 112a and 112b of liftchair 130 to control the mobility of liftchair 130, and handles 136 may be attached at top rear 136a of frame 112.

In FIG.3 the liftchair illustrated in FIG.2 is shown with seat 113 moved down in between frame 112 and between wheels 131 and 133 to a position 138a slightly below underside 138 of frame 112, to a position 138a, with seat 113 resting on ground 115, where it has lifted wheels 131 and 133 slightly above ground 115, making liftchair 130 particularly immobile and firmly stable resting on ground 115, since combined weights of liftchair 130 and weights of wheels 131 and 133 and handrails 132 are bearing down on seat 113 that is resting on ground 115.

In FIG.4 liftchair 100 illustrated in FIG.1 is shown with seat 113 in it's upper position 113a with 2 front swivel wheels 110a and 2 rear fixed wheels 110 (not visible) resting on ground 115, enabling liftchair 100 to become mobile when desired.

In FIG. 5 a side elevation of the liftchair illustrated in FIG.4 is shown with seat 113 in it's upper position 113a, with one pair of front wheels being swivel wheels and one pair of wheels 110 at rear of liftchair 100 being fixed wheels.

In FIG.6, liftchair 100 illustrated in FIG.5 is shown with seat 113 in it's lowest position 113b, with seat 113 resting fully on ground 115, making liftchair 100 immobile, facilitating transfer of a person from ground 115 onto seat 113 without seat 113 moving away from the transferring person during this transfer operation.

In FIG.7 a liftchair 140 of the type illustrated in FIG.2 and FIG.3 is shown at 140, in this embodiment having a frame 141 of tubular construction made of wheelchair type tubing, substantially in the form of a conventional wheelchair, liftchair 140 having 2 sides 142 and 143 and a back 144. A crossmember 145 is located at bottom front 146 frame 141, connecting sides 142 and 143 together. Similarly cross members 147, 147a and 147b are located at back 144 of frame 141 connecting sides 142 and 143 together at the back. Identical side members 150 on either side 142 and 143 connect vertical front frame members 151 and vertical rear frame members 152 together and rotatably carry large wheelchair wheels 131 at 131a on either side 142 and 143 of frame 141. Brackets 154 at back 149 of frame 141 carry swivel wheels 155 and may carry a battery 162 to drive mechanism to lift seat 113 up and down . This seatlift mechanism

drives seat 113 substantially vertically up and down on rollers 160, rolling on vertical rails 161 located at each side 142 and 143 of frame 141. Seat 113 is adapted to go fully down to ground 115 between vertical rails 161, sides 142 and 143 of frame 141 and wheels 131.

## CLAIMS

I claim:

1 An armchair with seatlift , in which said armchair with seatlift, in the following called "liftchair", has a frame, said frame having a bottom, wheel means on said liftchair, said wheel means extending below said bottom, seat means in said frame, said seat means being vertically movable in said frame to an upper position and respectably to a lower position, said liftchair being located on a ground, said liftchair being rendered automatically mobile in said upper position of said seat, said liftchair being rendered automatically immobile and stable on said ground upon said seat means having been moved to said lower position, said seat means automatically locking said liftchair to said ground while said seat means is in said lower position, switch means on said liftchair to control said seat means to move up and down in said frame, said seat means being able to go down between said wheel means and said frame to rest fully on said ground in said lower position, said seat means being able to carry the weights of said liftchair and said wheel means and transfer said weights to said ground in said "lower" position, automatically rendering said liftchair frictionally immobile, thereby to permit a fallen person on said ground to transfer safely from said ground onto said seat means, without said liftchair moving away from said person during said transfer, said liftchair automatically becoming fully mobile again upon said seat means being moved upward toward said upper position, releasing said seat means and said weights from contact with said ground, allowing said wheel means to be free to move over said ground.

2. An improvement in a liftchair as claimed in claim 1, in which said wheel means comprise a combination of fixed wheel means and swivel wheel means located at said bottom of said liftchair, said seat means being able to go down between said combination of wheel means to said ground, said seat means being able to lift said combination of wheel means slightly above said ground, friction between said seat and said ground thereby rendering said liftchair immobile to facilitate safe transfer of a fallen person from said ground to said seat means, said liftchair automatically becoming mobile upon said seat means being moved upward, automatically releasing said friction between said seat means and said ground and at the same time allowing said combination of wheels means to go down in contact with said ground.

3. An improvement in a liftchair as claimed in claim 1, in which said liftchair has a frame with two sides and in which said wheel means comprise wheel chair type wheel means, rotatably attached to each of said two sides of said frame, making said liftchair mobile when desired, said seat means being able, when desired, to go vertically down between said wheel means to said

ground and be in full contact with said ground, said seat being able to lift said wheel means slightly off said ground, said seat means thereby resting fully on said ground to automatically render said liftchair fully immobile, said liftchair automatically becoming mobile again upon said seat means being moved upward out of contact with said ground.

4. An improvement in a liftchair as claimed in claim 3, in which said frame is of tubular construction made substantially of wheelchair type tubing, substantially in the form of a conventional wheelchair, including brake means to control mobility of said liftchair.

5. An improvement in a liftchair as claimed in claim 4, in which battery means are carried on said frame to drive said liftchair mechanism and to facilitate mobility of said liftchair.